



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/687,926      | 10/20/2003  | Rafi Heiman          | 003955.00126        | 8332             |

22907 7590 06/12/2007  
BANNER & WITCOFF, LTD.  
1100 13th STREET, N.W.  
SUITE 1200  
WASHINGTON, DC 20005-4051

|          |
|----------|
| EXAMINER |
|----------|

MEW, KEVIN D

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2616

|           |               |
|-----------|---------------|
| MAIL DATE | DELIVERY MODE |
|-----------|---------------|

06/12/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/687,926

Applicant(s)

HEIMAN ET AL.

Examiner

Kevin Mew

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/20/03</u> . | 6) <input type="checkbox"/> Other: _____  |

*Detailed Action*

*Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 5-11, 13, 17-18, 21-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Carneal et al. (USP 6,847,626 B1).

Regarding claim 1, Carneal discloses in a satellite communication system (satellite system, col. 4, lines 25-28, Fig. 2), a method comprising steps of:

allocating for control (allocating for notification message, col. 6, lines 25-28) a first portion (a reserved block, col. 6, lines 25-28) of a pool of slots (from a pool of three resource allocation blocks, col. 6, lines 12-15) within a return channel (within a channel between a remote unit and a hub station, col. 6, lines 20-40);

allocating for data (allocating for data, col. 6, lines 41-65) a second portion (a combination of contention-type access block and non-contention access block, col. 6, lines 41-65) of the pool of slots (from the pool of three resource allocation blocks, col. 6, lines 12-15), wherein the second portion is accessible by circuit-switched TDM allocations (in non-contention type access block, the remote unit retransmits data over the indicated resource within the non-contention access block, col. 6, lines 3-5, col. 7, lines 65-67, col. 8, lines 1-3), reservation allocations (non-contention type access block comprises a set of scheduled resources which may

Art Unit: 2616

be temporarily dedicated to a chosen remote unit, col. 7, lines 65-67), and random access (contention-type access comprises random access resources, col. 6, lines 41-51).

Regarding claim 5, Carneal discloses the method of claim 1, wherein each slot in the first portion (reserved block) includes a plurality of mini-slots (includes a set of TDMA channels, col. 6, lines 21-23), the method further comprising step of:

transmitting data bursts in the second portion of the pool of slots (transmitting data in contention-type access block and non-contention type access block, col. 6, lines 41-65); and

transmitting control bursts in the mini-slots (transmitting notification message in TDMA channels), the control bursts being shorter in duration than the data bursts (the resources allocated to reserved block for notification message is small in size compared to total available resources, col. 6, lines 25-34).

Regarding claim 6, Carneal discloses the method of claim 1, wherein the first portion of the pool of slots includes frequencies distinct from frequencies in the second portion of the pool of slots (reserved block may use different communication format such as different frequency slots as the contention-type access block and non-contention-type access block, col. 13, lines 32-43).

Regarding claim 7, Carneal discloses the method of claim 1, wherein the first and second portions of the pool of slots share a same set of frequencies (reserved block may use the same

Art Unit: 2616

communication format such as same frequency slots as the contention-type access block and non-contention-type access block, col. 13, lines 32-43).

Regarding claim 8, Carneal discloses the method of claim 1, further comprising a step of allocating a TDM slot allocation (allocating TDMA channel resources) for control bursts (for notification messages) within the first portion to a first remote terminal (within the reserved block to the remote terminal, col. 6, lines 21-30).

Regarding claim 9, Carneal discloses the method of claim 8, wherein the step of allocating the TDM slot allocation includes the first remote terminal allocating for itself the at least one TDM slot allocation (allocating a non-contention type resource, col. 11, lines 29-40).

Regarding claim 10, Carneal discloses the method of claim 9, further comprising steps of: the first remote terminal transmitting a control burst in random access in a chosen slot (remote terminal is transmitting in the reserved block a message which indicates the number of packets transmitted over the contention-type resource, col. 11, lines 29-40); and;

receiving a response to the control burst (remote unit receives a response regarding the message), wherein the step of the first remote terminal allocating for itself the at least one TDM slot allocation is performed responsive to receiving a response to the control burst (the remote unit responds by re-transmitting data over the assigned non-contention resource of sufficient size, col. 11, lines 29-40).

Regarding claim 11, Carneal discloses the method of claim 10, wherein the TDM slot allocation that the first remote terminal allocates for itself is the chosen slot associated with the response (the allocation is the chosen non-contention type resource associated with the response

Art Unit: 2616

to from the hub station to the remote unit), the response pointing to the chosen slot (the response pointing to the assigned non-contention resource, col. 11, lines 29-40).

Regarding claim 13, Carneal discloses the method of claim 8, further comprising monitoring traffic generated by a plurality of remote terminals in the return channel, wherein the step of allocating the TDM slot allocation is performed depending upon the traffic (depending on the amount of traffic that needs to be transmitted, col. 11, lines 29-40).

Regarding claim 17, Carneal discloses a remote terminal configured to communicate with a satellite system (satellite system, col. 4, lines 25-28, Fig. 2) including a plurality of other remote terminals, the remote terminal configured to transmit over a return channel shared with the other remote terminals (transmit data within a channel between a remote unit and a hub station, col. 6, lines 20-40), the return channel including a control portion (a reserved block, col. 6, lines 25-28) and a data portion (a combination of contention-type access block and non-contention access block, col. 6, lines 41-65), wherein the remote terminal is configured to transmit over the data portion through circuit-switched TDM allocations (in non-contention type access block, the remote unit retransmits data over the indicated resource within the non-contention access block, col. 6, lines 3-5, col. 7, lines 65-67, col. 8, lines 1-3), reservation allocations (non-contention type access block comprises a set of scheduled resources which may be temporarily dedicated to a chosen remote unit, col. 7, lines 65-67), and random access (contention-type access comprises random access resources, col. 6, lines 41-51).

Regarding claim 18, Carneal discloses the remote terminal of claim 17, wherein the control portion (reserved block) includes a plurality of mini-slots within slots of the data portion, the remote terminal being further configured to transmit data bursts within at least one of the slots of the data portion (transmitting data in contention-type access block and non-contention type access block, col. 6, lines 41-65) and control bursts within at least one of the mini-slots (transmitting notification message in TDMA channels), the control bursts being shorter in duration than the data bursts (the resources allocated to reserved block is small in size compared to total available resources, col. 6, lines 25-34).

Regarding claim 21, Carneal discloses the method of claim 17, wherein the control portion of the pool of slots share a same set of frequencies (reserved block may use the same communication format such as same frequency slots as the contention-type access block and non-contention-type access block, col. 13, lines 32-43).

Regarding claim 22, Carneal discloses the method of claim 17, wherein the control portion of the pool of slots includes frequencies distinct from frequencies in the second portion of the pool of slots (reserved block may use different communication format such as different frequency slots as the contention-type access block and non-contention-type access block, col. 13, lines 32-43).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2, 12, 14-16, 19, 23-28, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carneal in view of Crisler et al. (USP 5,295,140).

Regarding claim 2, Carneal discloses all the aspects of claim 1 above, except fails to disclose the method of claim 1, further comprising a step of accessing the first portion (reserved block) of the pool of slots through random access.

However, Crisler discloses accessing the reserved time slots (first portion of the pool of slots) through randomly accessing/transmitting in one of the reservation time slots (col. 2, lines 1-21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the resource allocation system and method of Carneal with the teaching of Crisler in accessing the reserved time (first portion of the pool of slots) through randomly accessing/transmitting in one of the reservation time slots such that the resource allocation method of Carneal will further comprise a step of accessing the first portion (reserved block) of the pool of slots through random access.

The motivation to do so is to obtain exclusive access of an associated data time slot.



Art Unit: 2616

Regarding claim 12, Carneal discloses all the aspects of claim 8 above, except fails to disclose the method of claim 8, further including a step of generating by a second remote terminal a random access control burst that collides with the first remote terminal.

However, Crisler discloses accessing the reserved time slots (first portion of the pool of slots) through randomly accessing one of the reservation time slots (col. 2, lines 1-21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the resource allocation system and method of Carneal with the teaching of Crisler in accessing the reserved time (first portion of the pool of slots) through randomly accessing one of the reservation time slots such that the resource allocation method of Carneal will further comprise a step of generating by a second remote terminal a random access control burst that collides with the first remote terminal.

The motivation to do so is for a remote terminal to obtain exclusive access of an associated data time slot.

Regarding claim 14, Carneal discloses all the aspects of claim 8 above, except fails to explicitly show the method of claim 8, further comprising a second remote terminal transmitting control bursts on the first portion through random access.

However, Crisler discloses accessing the reserved time slots (first portion of the pool of slots) through randomly accessing/transmitting in one of the reservation time slots (col. 2, lines 1-21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

Art Unit: 2616

invention was made to modify the resource allocation system and method of Carneal with the teaching of Crisler in accessing the reserved time (first portion of the pool of slots) through randomly accessing/transmitting in one of the reservation time slots such that the resource allocation method of Carneal will further comprise a second remote terminal transmitting control bursts on the first portion (reserved block) through random access.

The motivation to do so is for a remote terminal to obtain exclusive access of an associated data time slot.

Regarding claim 15, Carneal discloses all the aspects of claim 1 above, except fails to explicitly show the method of claim 1, further comprising broadcasting an indication of which portion of the pool of slots is allocated as the first portion.

However, Crisler teaches a time slot is designated for reserved access for a communication unit and only the communication unit for whom the time slot was reserved is permitted to transmit packets in that time slot (col. 6, lines 11-21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the resource allocation system and method of Carneal with the teaching of Crisler in designating a time slot for reserved access to a communication unit and only the communication unit for whom the time slot was reserved is permitted to transmit packets in that time slot such that the system of Carneal will further comprise broadcasting an indication of which portion of the pool of slots is allocated as the first portion.

The motivation to do so is to allow the remote unit of Carneal to identify which time slots to be used for reserved access purpose.

Regarding claim 16, Carneal discloses the method of claim 15, wherein the allocated first and second portions change dynamically, wherein any slot in the pool of slots that is not assigned for reservation (any resources not assigned to non-contention access block, col. 13, lines 15-31) or circuit-switched TDM allocation is available for control burst (is available to reserved block, col. 13, lines 15-31) or random access burst.

Regarding claim 19, Carneal discloses all the aspects of claim 17 above, except fails to disclose the remote terminal of claim 17, wherein the remote terminal is further configured to access the control portion (reserved block) through random access.

However, Crisler discloses accessing the reserved time slots (first portion of the pool of slots) through randomly accessing/transmitting in one of the reservation time slots (col. 2, lines 1-21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the resource allocation system and method of Carneal with the teaching of Crisler in accessing the reserved time (first portion of the pool of slots) through randomly accessing/transmitting in one of the reservation time slots such that the remote terminal of Carneal is further configured to access the control portion (reserved block) through random access.

The motivation to do so is to obtain exclusive access of an associated data time slot.

Art Unit: 2616

Regarding claim 23, Carneal discloses a remote terminal configured to communicate with a satellite system including a plurality of other remote terminals, the remote terminal configured to transmit over a return control channel shared with the other remote terminals (transmitting notification message in TDMA channels), wherein the remote terminal is configured to access the return control channel using allocated access (access to reserved block is allocated according to the category of the remote unit, col. 13, lines 1-6).

Carneal does not explicitly show accessing the return control channel using random access.

However, Crisler discloses accessing the reserved time slots (first portion of the pool of slots) through randomly accessing/transmitting in one of the reservation time slots (col. 2, lines 1-21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the resource allocation system and method of Carneal with the teaching of Crisler in accessing the reserved time (first portion of the pool of slots) through randomly accessing/transmitting in one of the reservation time slots such that the resource allocation method of Carneal will further comprise a step of accessing the first portion (reserved block) of the pool of slots through random access.

The motivation to do so is to obtain exclusive access of an associated data time slot.

Regarding claim 24, Carneal discloses the remote terminal of claim 23, wherein the remote terminal (remote terminal) is further configured to receive a TDM control allocation (receives TDMA channel resources allocation within the reserved block to the remote terminal,

Art Unit: 2616

col. 6, lines 21-30) from the satellite system and to access the return control channel in accordance with the TDM control allocation (remote terminal is accessing the control channel by transmitting in the reserved block a message which indicates the number of packets transmitted over the contention-type resource, col. 11, lines 29-40).

Regarding claim 25, Carneal discloses the remote terminal of claim 24, wherein the satellite system monitors traffic and generates the TDM control allocation depending upon the traffic (depending on the amount of traffic that needs to be transmitted, col. 11, lines 29-40).

Regarding claim 26, Carneal discloses the remote terminal of claim 23, wherein the remote terminal is further configured to self-allocate a TDM allocation (allocating a reserved block, col. 6, lines 25-28) in the return control channel for control traffic (for notification message, col. 6, lines 25-28).

Regarding claim 27, Carneal discloses the remote terminal of claim 26, wherein the remote terminal is configured to access the at least one slot in the return control channel by selecting either a request for data channel allocation (remote terminal is transmitting in the reserved block a message which indicates the number of packets transmitted over the contention-type resource, col. 11, lines 29-40) or a placeholder, and transmitting either the request for data channel allocation (the remote unit is transmitting request for the contention-type resource in the control channel, col. 11, lines 29-40) or the placeholder (transmitting over non-contention type resource, col. 11, lines 29-40).

Art Unit: 2616

Regarding claim 28, Carneal discloses the remote terminal of claim 27, wherein the remote terminal is configured to transmit the placeholder (transmitting over non-contention type resource, col. 11, lines 29-40) when the remote terminal does not need a data channel allocation (when it does not need a contention-type resource allocation when the communication resources can be predicted by the remote unit, col. 11, lines 41-58).

Regarding claim 30, Carneal discloses in a satellite communication system, a method comprising steps of:

allocating a first subset of slots from a single pool of slots using reservation allocations (in non-contention type access block, the remote unit retransmits data over the indicated resource within the non-contention access block, col. 6, lines 3-5, col. 7, lines 65-67, col. 8, lines 1-3) and circuit-switched TDM allocations (non-contention type access block comprises a set of scheduled resources which may be temporarily dedicated to a chosen remote unit, col. 7, lines 65-67); and

making available a second subset of slots (a reserved block, col. 6, lines 25-28) from the single pool of slots for control (for notification message, col. 6, lines 25-28) and data random access (contention-type access comprises random access resources, col. 6, lines 41-51).

Carneal does not explicitly show the access for control is random access.

However, Crisler discloses accessing the reserved time slots (first portion of the pool of slots) through randomly accessing/transmitting in one of the reservation time slots (col. 2, lines 1-21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

Art Unit: 2616

invention was made to modify the resource allocation system and method of Carneal with the teaching of Crisler in accessing the reserved time (first portion of the pool of slots) through randomly accessing/transmitting in one of the reservation time slots such that the access for control in Carneal is random access.

The motivation to do so is to obtain exclusive access of an associated data time slot.

3. Claims 3-4, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carneal in view of Crisler et al., and in further view of Junell (USP 5,953,649).

Regarding claims 3 and 4, Carneal and Crisler disclose all the aspects of claim 2 above, except fail to disclose the method of claim 2, wherein the step of accessing includes transmitting duplicate control bursts on the first portion and more than two duplicate control bursts are transmitted.

However, Junell discloses a control burst is repeated at regular intervals within a given frame period (duplicate control bursts on the first portion, col. 12, lines 33-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the resource allocation system and method of Carneal and Crisler with the teaching of Junell in having a control burst repeated at regular intervals within a given frame period such that the step of accessing in Carneal will include transmitting duplicate control bursts on the first portion and more than two duplicate control bursts to be transmitted..

The motivation to do so is to burst that contains a reference sequence with a predetermined form to allow signal acquisition, frame synchronization and elimination of frequency errors in a multi-frequency communications system.

Regarding claim 20, Carneal and Crisler disclose all the aspects of claim 19 above, except fail to disclose the remote terminal is further configured to transmit duplicate control bursts on the control portion.

However, Junell discloses a control burst is repeated at regular intervals within a given frame period (duplicate control bursts on the first portion, col. 12, lines 33-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the resource allocation system and method of Carneal and Crisler with the teaching of Junell in having a control burst repeated at regular intervals within a given frame period such that the remote terminal of Carneal is further configured to transmit duplicate control bursts on the control portion.

The motivation to do so is to burst that contains a reference sequence with a predetermined form to allow signal acquisition, frame synchronization and elimination of frequency errors in a multi-frequency communications system.

4. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carneal in view of Crisler et al., and in further view of Simmons (USP 5,839,068).

Regarding claim 29, Carneal and Crisler disclose all the aspects of claim 23 above, except fail to explicitly show the remote terminal is a very small aperture terminal (VSAT).

However, Simmons discloses a satellite communication system (Fig. 1) wherein the remote units, which are VSAT terminals, communicate with the satellite (col. 2, lines 1-11).



Art Unit: 2616

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the resource allocation system and method of Carneal with the teaching of Simmons in having VSAT terminals as remote units to communicate with the satellite such that the remote units of Carneal will be implemented as VSAT terminals.

The motivation to do so is to use a remote ground transceiver to provide a clear path to point to the satellite and to provide voice channel communications.

Art Unit: 2616

*Conclusion*

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin Mew  
Work Group 2616

KM

  
CHI PHAM  
SUPERVISORY PATENT EXAMINER

6/8/07